JULY 2009 ISSUE

DATA – FACTS – ANALYSIS

CUTEC-News

NO MAGIC TRICK: GALVANISED STEEL IS TURNED INTO ZINC AND STEEL

ENERGY – A TOPIC WITH TRADITION FOR US

Experts in car factory paint shop energy efficiency at the CUTEC Institute

The subject of energy is one in which CUTEC has a tradition stretching back almost 20 years. Indeed, the Institute has been researching into energy technology in addition to environmental technology since its very beginnings. Both are reflected in the slogan: "CUTEC – your research partner and innovative service provider in the fields of environmental and energy technology" which we employ at trade fairs and other events. It does appear to me, however, that the general public associates us less with energy than with the environment, and so I am devoting this editorial to the subject of energy. I strongly welcome all the current energy initiatives being undertaken by the federal and state governments in Germany, although I am concerned that debate often fails to consider the possibilities for saving process energy. In manufacturing industry especially, which is highly energy-intensive, this issue is key. Although there are various research organisations in Lower Saxony working in the energy field, they tend to focus on the supply side, whereas we additionally consider the thornier and more challenging issue of energy-saving potential directly in processes and process sequences, based on the idea that surplus energy generated during a process is always the cheapest to use. I believe that research efforts must focus not only on efficiency of energy generation, but must also encompass efficiency of energy use. CUTEC's research work at process level, for example, is helping to improve the energy balance in the paint shop of a car-maker based in Lower Saxony. Check out page 5 of this issue for the report on a symposium we hosted on the subject back in May.

With our keynote research into biomass conversion and our contribution to the Energy Park Clausthal joint venture we are of course also working on the energy supply side. Trials are current in progress running our ArtFuel plant with straw, and the results are presented on page 4. There have also been new developments in the production of biogas by anaerobic digestion of biomass. See page 4 for the report.

A new CHP unit has been commissioned into operation at the Energy Park, and we report on it on page 5 of this issue. Energy-saving is nowadays linked inextricably to reducing the use of fossil fuels. It is also vital to use material resources efficiently too, however. The dezincification of steel sheet is a new joint project in this respect, and this issue includes an article about it on page 2.

As you can see from the range of topics, we are committing all our energies to challenging and innovative research projects in the fields of both environmental and energy technology. In conclusion, I would like to express the hope that what I have set out in this editorial may help you to be more aware of "our energy" in future.

Best regards, Otto Carlowitz

„INTERNATIONAL CONFERENCE SERIES ON WATER AND WASTE-WATER TREATMENT“ GOES FROM STRENGTH TO STRENGTH

Based on a strong response to the Call for Papers, and having attracted a record number of participants, the 5th „International Conference on Oxidation Technologies for Water and Wastewater Treatment" (AOP5) was held in Berlin from March 30th to April 2nd, 2009. Some 270 participants from 40 countries came together to present and evaluate new developments in the field of water and wastewater treatment. Leading German and international specialists presented 43 paper and over 150 posters setting out their latest research findings and new product innovations. This year's key subjects were recalcitrant substances such as micro-pollutants, pharmaceuticals and endocrine disruptors.

The AOP (Advanced Oxidation Processes) conference was embedded in the conference series accompanying the "Wasser Berlin" international water industry trade fair. The event organisers had decided to move the conference to Germany's capital after more than 15 years in the cities of Goslar and Clausthal-Zellerfeld. The combination of events provided the conference participants with added value, as well as attracting trade fair visitors also to attend. An additional attraction was the CUTEC communal stand, on which a number of industrial partners presented the results of their work to an even broader specialist audience.

A major factor in the success of the conference was the work of the on-site organising team (see above). Thanks are also due to the management and employees of CUTEC, who provided assistance and support in the run-up to the event.

The poster exhibition attracted great interest

Thanks to sponsorship from the German Federal Environmental Foundation (DBU), 16 participants from low income countries were able to attend the AOP5 discussion forum. An excursion to waste water treatment plants enabled them to find out about the technical state of the art in Germany. The conference also enjoyed the support of a number of long-standing and newly acquired sponsors, including Anseros GmbH, Degremont Technologies Ltd. and ITT WEDECO, who helped to promote the event with great motivation and commitment.

For the first time also in Berlin, the International Ozone Association (IOA) joined forces in the established cooperation with the International Water Association (IWA). As a result, synergy effects helping to achieve the shared aims of both organisations could be utilised at one of the world's largest events in the oxidation wastewater treatment field.

The AOP conferences have been hosted by CUTEC, since 2006 together with the Technical University of Berlin. The long-standing teamwork between the collaborating partners is based on mutual trust and commitment, and as such provides a strong foundation for the future.

View of the conference hall

Over the coming months consultations will be held with the Scientific Committee and the IWA Specialist Group AOP as to the location for AOP6 in 2012, considering not only the scientific questions but also with a keen eye to inclusive collaboration with sponsors and exhibitors. (schä/kra)

IMPPRINT

Published by: CUTEC-Institut GmbH
Editor: Dr. T. Heere
Contributors:
Prof. Dr.-Ing. O. Carlowitz (ca)
J. Cronjäger (croJ)
Dr. T. Heere (he)
Dr.-Ing. B. Kragert (kra)
Dr.-Ing. T. Onyeche (on)
Dipl.-Ing. L. Piech (pi)
Apl. Prof. Dr.-Ing. M. Reuter (reu)
Dipl.-Kfm. A. Sauter (sr)
Dipl.-Ing. S. Schäfer (schä)
Dr. O. Schläfer (schl)
B. Schulz (sz)
Dipl.-Ing. N. Senkel (sen)
Dr.-Ing. S. Vodegel (vd)
Dr. T. Zeller (ze)
Layout and typesetting: G. Wessels (wes)
Photos: G.-E. Knochen (kn)
Production and supply:
CUTEC-Institut GmbH
Leibnizstr. 21+23
38678 Clausthal-Zellerfeld
Tel. +49 5323 933-0
Fax +49 5323 933-100
E-mail: cutec@cutec.de
Internet: www.cutec.de
Publication:
Several times a year at irregular intervals. Issues can be ordered from the address above at no charge.
Send an E-mail to:
cutec-news@cutec.de

Special report

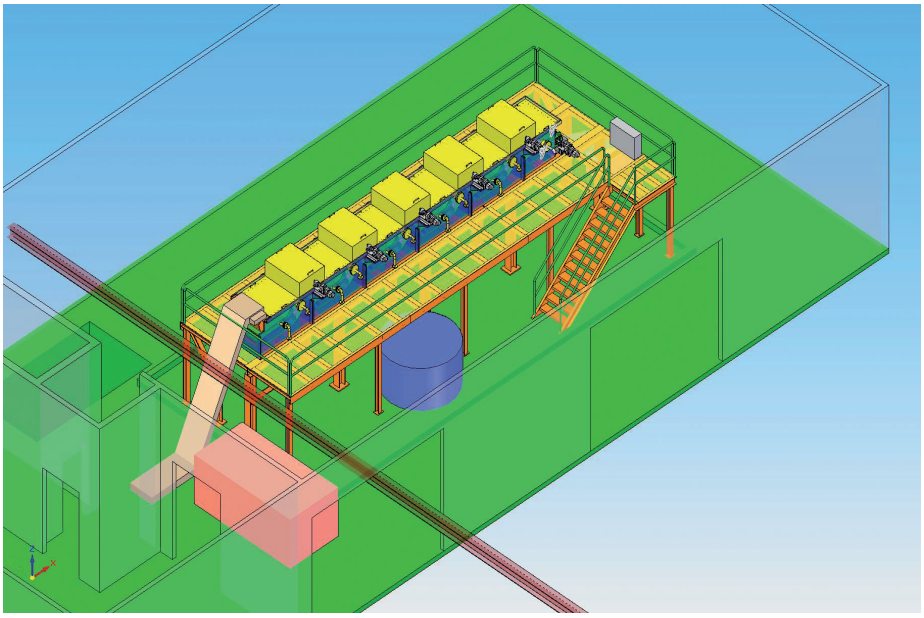
RESOURCE EFFICIENCY BASED ON DEZINCIFICATION OF STEEL SCRAP

The notification of grant allocation from the German Federal Ministry of Education and Research (BMBF) on April 6th, 2009 gave the Sustainability Management Cluster the green light to launch its three-year project on the dezincification of steel scrap beginning on May 1st, 2009.

The project relates to the scrap resulting from cutting of galvanised (zinc-coated) sheet metal during the production process in the automotive industry. The scrap is routinely melted down in electric furnaces for recycling. The zinc evaporates in the process, and is separated off by filters. Concentrating the zinc and then subjecting it to a series of cleaning processes enables only a portion of the zinc to be recovered and re-used. Yet the consumption of resources and energy, to say nothing of the environmental impact, of these state-of-the-art processes is enormously high.

Crushed galvanised sheet steel scrap

The object of the project is to dezincify the scrap before it is melted down, so that no zinc-containing dust is created in the melting process itself. The method applied by the project is to separate the zinc from the metal sheets in a spent pickle liquor. This liquor is then returned to the zinc production process at a smelting plant. The project involves the development and establishment of new systems of material circulation, enabling soft, zinc-free steel scrap to be made available for high-grade castings. The zinc yield of the recycling process is also increased, thereby minimising loss due to material sinkage. Consequently, the new process results in much less waste. It is estimated that resource and energy efficiency will be improved by as much as 70 % compared to current methods. An approximately 80 % reduction in CO_2 emissions is also expected.



Draft design of the dezincification plant

The plant is being planned in conjunction with our project partners (IFAD – Institut für Aufbereitung, Deponietechnik und Geomechanik, RHM – Rohstoffhandelsgesellschaft mbH, Sundwig GmbH, Xstrata Zink GmbH, Fritz Winter Eisengießerei GmbH & Co. KG, Wolfsburg AG and Progenf – Projektentwicklungsgesellschaft für das Entzinken von Feinblechschrotten) and will be constructed at the CUTEC Institute. The design is modular, and is planned to comprise five basins (see diagram above).

The basins will pickle and wash the zinc-containing scrap. The modular design means the basins can be filled with different media, providing for maximum flexibility. This continuously operating pilot plant will deliver the basis for specification of a planned demonstration plant producing some 250,000 tonnes of scrap per year.

In implementing this project, the dezincification plant will be constructed over the coming months in the third hall at CUTEC. We would like to take this opportunity to thank all in-house colleagues who have made this facility available – even though they may have done so with some reluctance, in view of the resultant shortage of space for their own needs.

The new plant has the potential for other applications in the development and improvement of efficient, environmentally friendly systems of material circulation. As such, the plant provides CUTEC with the opportunity to expand its research activities and look to the future with confidence based on the establishment of this additional, sustainable new area of operations.

We would particularly like to thank the BMBF for its funding of this groundbreaking basic research project. We are especially grateful to Mr. Weber from the Jülich/Berlin funding organisation for ensuring that the funding process was completed rapidly.

In view of the current economic situation especially, this project will make a valuable contribution in boosting the German economy despite the country's lack of raw material resources.

Further information will be made available in future on the Internet at www.metall-zukunft.de. (sr/ze)

SPONSORED BY

Bundesministerium für Bildung und Forschung

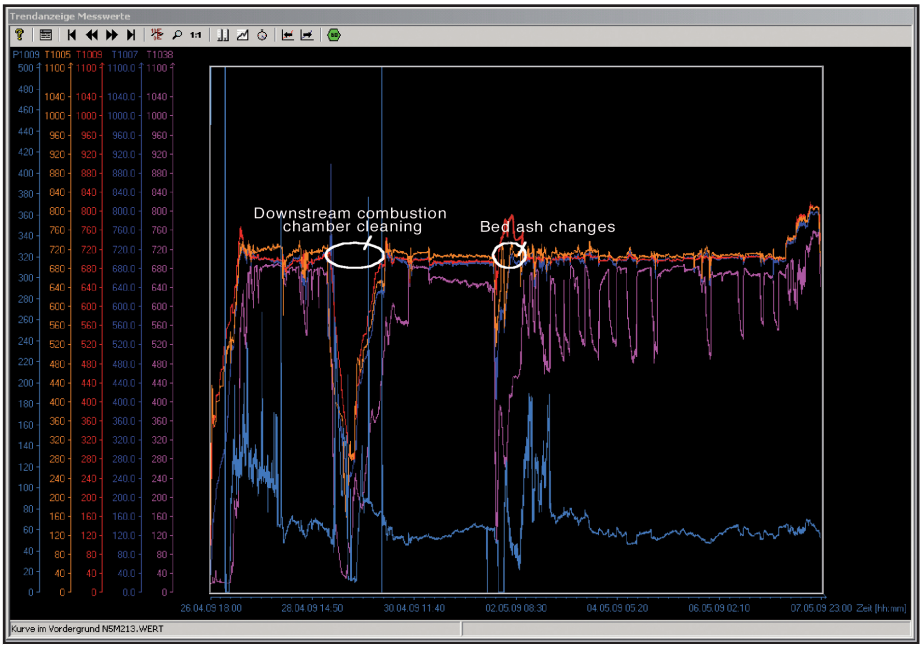
ARTFUEL PLANT: INPUT OF CHOPPED STRAW

– From a bale to synthesis gas –

The ArtFuel pilot plant in Clausthal demonstrated its suitability for a wide range of hydrocarbons over the course of some 1,800 hours in operation. The main fuels used were grain materials, based on straw or treated whole-crop silage.

Input materials were pellets, wood-chip, cuttings, glumes or wood chunks. Suitability for chopped biomass such as straw remains to be proven.

As part of a project funded by the German Federal Ministry of Food, Agriculture and Consumer Protection (BMELV) through the Regenerative Raw Materials Agency, straw bales were to be converted into a high net heating value synthesis gas. To achieve that, a chopper with a newly designed input system had to be installed in series. The old input system was dismantled as far as necessary. The primary aim of the project was to verify the functional capability in triple 100-hour continuous operation. The ash and gas properties were also to be compared against test results from other wood and straw gassing projects.



Graphic: Extract from the process control system for the period April 26 to May 7, 2009

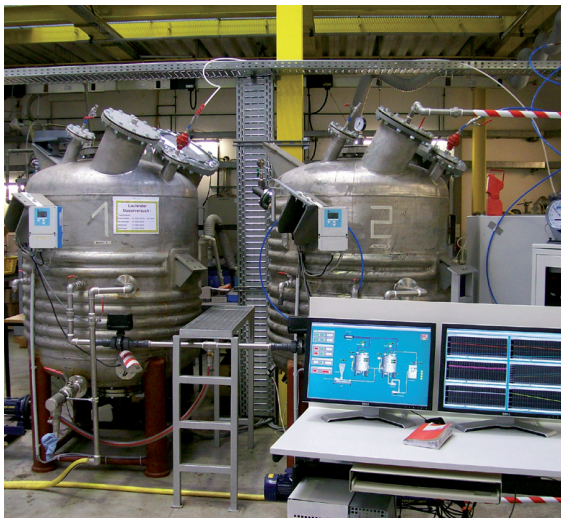
The project began with a search for manufacturers of the chopper and the

Continued on page 7

BIOGAS PLANT – NEW COMPONENTS

Further development of biogas operations at CUTEC

The prototype developed by CUTEC in the course of various projects (e.g. BIOWELL, CUTEC-News 4/2008) has been fitted with a wide range of new components to produce a fully automated biogas plant on pilot scale, and is now available for continuous research into optimisation of the fermentation process and in preparation for scale-up to implement technical biogas plants; see picture below at bottom left.

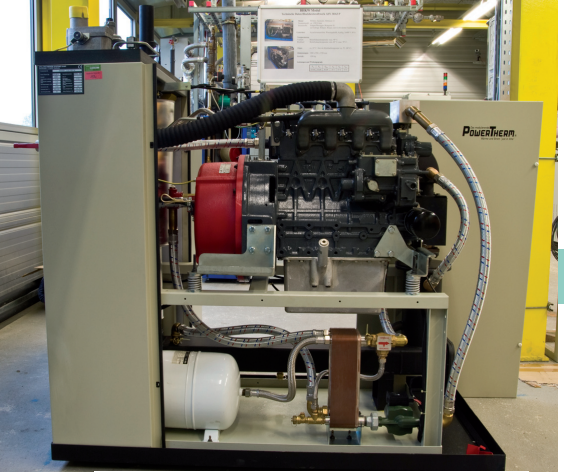


Pilot biogas plant during a long-term trial

The pilot plant essentially comprises two independent gas-tight, temperature-conditioned 1000 L reactors with an inlet and outlet, gas and sampling ports, and systems to control temperature, level and pH value. The control of the pilot reactors and the measurement data acquisition is largely automated, by way of a process control system. The propeller agitators in the reactor floor to mix the reactor content can be operated continuously or intermittently. The substrate tank is placed on a weighing scale, enabling the substrate feed over time to be recorded. The biogas produced is routed by way of a gas cooler with a condensate drain. The gas quantities are determined by means of gauges (wet gas meters). The gas composition (CO_2, CH_4) is measured continuously. Samples can additionally be taken to measure other parameters.

The new biogas plant thus represents an outstanding addition to the more than 100 existing batch laboratory reactors (gas-measuring cells) and over 20 continuously operated 10 L biogas reactors. This now enables CUTEC to undertake research into reactor development and process optimisation and to identify substrate-specific parameters (such as maximum volumetric loading, organic degradation of the substrate, process stability, residence time response, biosolid properties , gas quantity and composition etc.) from laboratory to pilot plant scale, and so improve the transferability of results to large-scale technical biogas plants. (schl)

NEW CHP UNIT FOR THE ENERGY PARK: THE POWERTHERM®



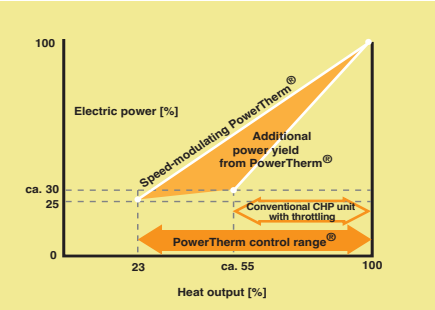
The PowerTherm® at the Energy Park

In April 2009 a new CHP (combined heat and power) unit, the PowerTherm, owned by the Spilling corporation, was added to the infrastructure of the Energy Park on the CUTEC Institute site. It was financed from the residual funds left over from all sub-projects at the end of the first funding phase of the "Forschungsverbund Energie Niedersachsen (FEN)" research project, and will in future be used for research into combined heat and power generation in the experimental grid.

In contrast to previously installed CHP units, this plant offers a high degree of adaptability to the energy demand of buildings. Thanks to its improved power regulation, with speed modulation, the Power-Therm is specified to guarantee a consistently high efficiency all across the control range from 5 kW to 20 kW electrical output (10 to 43 kW thermal output). By comparison, conventional CHP units in throttled mode at constant speed can be regulated to a minimum 50% of their output. The PowerTherm can also be operated at just a quarter of its maximum output, which greatly extends the unit's runtime. The diagram at the top right illustrates the advantage of the Power-Therm over conventional CHP units in terms of the additional power generated in the operating hours gained.

Another special feature of this CHP unit is its four-stage heat output coupling. The generator (water-cooled), the cooling water heat exchanger, the exhaust gas heat exchanger and a water-cooled exhaust gas collector are connected to the unit's cooling water circuit. As a result, the heat is not only used highly efficiently (thermal efficiency around 91%), but the machine also does not even need any housing ventilation (due to heat loss). This cooling system also makes the machine extremely flexible in terms of the output temperature level: return temperatures of between 30° and 85 °C are possible. Intake temperatures of up to 95 °C are easily operable. Consequently, the PowerTherm is very well suited to integration into research work at the Energy Park in developing combined heat and power (CHP) generation into trigeneration of combined heat, power and cooling (CHPC). It will shortly be coupled to the already installed NH_3/H_2O absorption refrigeration unit.

The PowerTherm is one of the first CHP units to be fitted with a self-developed permanent magnet-excited water-cooled synchronous generator which feeds the current by way of a feedback unit into the grid. This technique allows the power output to be controlled by way of the motor speed. This relieves the strain on the motor in part-load operation. In response to higher power demand more output can be generated than would be possible with a fixed, grid-synchronised speed setting. (sen)



Power range of the speed-modulating PowerTherm® CHP unit compared to a conventional CHP unit with throttling

VOLKSWAGEN AG PAINT AND EXHAUST AIR TREATMENT SYMPOSIUM AT CUTEC

30 experts meet to exchange views and knowledge, because communication is everything!

On May 11th, 2009 the first Paint and Exhaust Air Treatment Symposium organised by Volkswagen AG took place at CUTEC. The event played host to specialists not only from Volkswagen's various paint shop departments but also to paint manufacturers as well as producers of process plant, burners, catalysts and adsorbents. The keynote topic of the Symposium was the possibilities for the use of catalysts in existing exhaust air treatment plants for paint shop drying processes.

Prof. Carlowitz (vorn l.) zeigt den interessierten Fachleuten das CUTEC-Institut

First of all, Wolfsburg paint shop manager Mr. Müller and planning project manager Mr. Pelz gave a presentation on the plant's paint shops and their drying and exhaust air treatment systems. Then Professor Carlowitz outlined the status of the joint project between Lufttechnik Bayreuth, Volkswagen and CUTEC being funded by the German Federal Environmental Foundation (DBU). Its presentation covered the development and testing of exhaust gas treatment concepts for vehicle body dryers which promise reduced primary energy input while largely retaining existing plant technologies. The next presentation in the programme was by Mr. Euler, from Süd Chemie, on the subject of catalysis and catalysts. Then paint experts Mr. May (Dupont), Professor Winkler (Hemmelrath), Dr. Wohlfarth (BASF) and Mr. Huesmann (PPG) reported on possible critical constituents and additives in the paint products.

Continued on page 8

CUTEC ACCOMPANIES LOWER SAXONY MINISTER-PRESIDENT CHRISTIAN WULFF TO JAPAN

From March 14th to 21st, 2009 Minister-President of the state of Lower Saxony Christian Wulff travelled to Japan at the head of a 32-member delegation. He was accompanied by high-ranking representatives from Lower Saxony's business, scientific and cultural life, including representatives of Deutsche Messe AG, of TUI and of Landesbank Nord/LB. The delegation also included CUTEC Manager of International Operations, Dr.-Ing. Theodore Onyeche.

The object of the trip was to strengthen Lower Saxony's existing political, economic, scientific and cultural ties with Japan. The international financial crisis and its impact on the Japanese and German economies dominated much of the discussion.

"As a big exporter, and a major automobile producer, Japan has been affected by the economic crisis in a similar way to Germany. There are many parallels. Especially at a time such as this, it is important to exchange information on the situation in the respective countries, to identify common interests and to profit from each other's strengths," Wulff commented. "Lower Saxony and Japan have a good relationship

Lower Saxony's Minister-President Christian Wulff and Dr.-Ing. Theodore Onyeche (left to right)

on many levels. Its true potential is far from being fully utilised however. I see great opportunities, particularly in high-tech fields such as the life sciences, as well as in the automotive and aircraft manufacturing industries," Wulff continued.

One of the main areas of focus of the trip was the life sciences sector (biotechnology, pharmaceuticals, medicine) and a visit to the Prefecture of Tokushima. At the official signing of a cooperation agreement between the Hanover College of Medicine (MHH) and the University of Tokushima, Minister-President Wulff took the opportunity to introduce Dr. Onyeche to the Governor of the Prefecture of Tokushima, Kamon Iizumi. More detailed discussions were held during the tour of the University of Tokushima and the leading research centres in Tokushima and Kobe, as well as at the presentation at a workshop in Osaka titled "Lower Saxony – Your Partner in Life Sciences". Based on the trip, Dr. Onyeche sees opportunities for CUTEC, too, to find new cooperation partners in Japan.

Alongside the delegation's tightly organised official programme, Dr. Onyeche also took the opportunity to meet with the Managing Director of TSUKISHIMA KIKAI Co., Ltd., Mr. Nishida, and the head of the research department, Mr. Yoshikoshi. CUTEC was already involved in intensive business contacts with the TSUKISHIMA corporation as part of the "FlocFormer" development project for sludge conditioning. Additional work steps and a possible extension of the project, which has been running for three years now, were discussed. (on/sz)

TRADE FAIR ACTIVITIES IN SPRING 2009

WASSER BERLIN 2009

Marking the start of Spring, the "WASSER BERLIN" water industry trade fair ran from March 30th to 3. April 3rd, 2009. The fair, held every three years, is the major international forum for the water industry, with an exhibition and conference on the subject of water and wastewater treatment.

On a roughly 100 square metre stand in Hall 6.2B, the CUTEC Institut GmbH was this time around showing not only its own innovations, but also those of five co-exhibitors:

- Ultrasonic Systems GmbH
- UV-Consulting Peschl E. K.
- VTU Technology GmbH
- a.c.k. aqua concept GmbH
- Praxair Deutschland GmbH & Co. KG

who took the opportunity to present their latest products and processes to the international visitors. The communal stand offered an attractive and relaxed setting for the interchange of ideas and discussions with visitors.

The highlight of the CUTEC presentation was the model of a polymer mixer (Floc Former) for the conditioning of sewage sludge. (wes)

Hannover Messe Industrie 2009

This year once again, CUTEC was represented at the Hanover Fair – this time around with the "Detectino" project, which detects and identifies underground supply pipes based on radar measurements. Throughout the week-long exhibition there was lively interest from potential users in the industrial sector, who recognised the system's usefulness in providing the kind of information which land registry data can

Science and Culture Minister Stratmann (centre) came to find out about the Detectino project

rarely furnish. That shortcoming can have dramatic consequences, with earthworks damaging or even destroying the lifelines of our highly industrialised society on a daily basis, causing not only inconvenient power, water and gas cuts and outages in data flows, but also incurring huge losses for insurers and construction companies. (reu)

SCIENTIFIC ADVISORY BOARD

Prof. Dr.-Ing. Gerhard Schembecker in profile

Prof. Dr.-Ing. Gerhard Schembecker

Professor Dr.-Ing. Gerhard Schembecker has since September 2005 been head of the Department of Plant and Process Engineering at the Faculty of Bio and Chemical Engineering of the Technical University of Dortmund. His research is in experimentally safeguarded process development, with a particular focus on innovative treatment processes and modularisation in plant manufacture. Born in 1963 in Wadersloh in the state of North Rhine-Westphalia, from 1983 to 1988 he studied chemical engineering in Dortmund, gaining his doctorate in 1992, with distinction, on the subject of expert systems, while working as a member of the scientific staff, and later as a senior engineer, in the Department of Technical Chemistry A. Awarded the Rudolph Chaudoire Prize for outstanding young scientists in 1996, and in 1998 receiving the Haltermann Innovation Prize for his work on the synthesis of solvent treatment processes, Professor Schembecker moved, as part of a research project, to Carnegie Mellon University in Pittsburgh, USA, in 1999. In the same year he was awarded his Habilitation in the field of process and plant engineering at the University of Dortmund, with a paper on heuristic/numeric process synthesis. He was also presented with the Shell Memento Award, which rewards ideas for process improvement. During the the years prior to taking up his Chair at the University of Dortmund, Professor Schembecker was a self-employed entrepreneur. He was a co-founder of the Process Design Center corporation, with offices in Dortmund, Germany, Breda in the Netherlands, and San Diego, USA. He spent time as a company director at those locations, contributing to over 100 industrial development projects aimed at developing new chemical processes or optimising existing processes. To date, Professor Schembecker has issued some 30 certified publications and contributions to collected works. He holds three patents, and is a member of numerous scientific organisations and advisory boards. He is also spokesman for the North Rhine-Westphalia Graduate Cluster "Industrial Biotechnology" – a cross-university doctoral school jointly sponsored by the TU Dortmund and the Universities of Düsseldorf and Bielefeld. Professor Schembecker has been a member of the Scientific Advisory Board of CUTEC since 2007. Asked as to his motivation, he states that safeguarding the resources needed by future generations will be one of the core challenges of our work. He believes that CUTEC and the TU Clausthal will make an important scientific contribution to meeting that challenge. Alongside outstanding solutions to singular issues such as the development of new catalysts, however, success will also depend on the establishment of synergies between different disciplines, he says. For example biotechnology, in combination with chemical processes such as Fischer-Tropsch synthesis, will play a major role in process optimisation, with the occurring wastewater also having to be treated accordingly. Professor Schembecker goes on: "I therefore see a particular strength of CUTEC in the breadth of this work, which covers the entire production chain from the reaction to the wastewater treatment. Promoting integration is the motivation for my work on the Scientific Advisory Board of CUTEC." (he)

Continuation from page 4

ARTFUEL PLANT: INPUT OF CHOPPED STRAW

new input system. The requirements of the chopper were that it a) had to be suitable for indoor operation (→ electric motor-driven instead of tractor-pulled) and b) had to safeguard a relatively low plant throughput of 60 to 100 kg per hour. From a number of bidders, KLE in Groß-Rosenburg was selected.

It proved complicated to find a manufacturer of the input system, as chopped straw is regarded as very difficult. Eventually REW in Quakenbrück, a company with specialist know-how in transporting bulk materials by worm conveyor and in thermo-chemical conversion, was found.

The original timetable covered eight months, plus post-project reporting. The intention was to run three trial weeks, with evaluation periods and time for necessary modifications in-between. The task was to obtain findings for planning of a demonstration plant with an output of 20 MWtherm. In view of the background conditions to the project, the trials were conducted under a high degree of time pressure. A further difficulty was that, due to various circumstances, the original timetable was delayed by about six weeks.
Owing to the time factors cited, all optimisation, modification and repair work had to be carried out while the trials were running. This meant that frequently shutdowns and start-ups were required, particularly at the beginning.

As the graphic shows, after many initial difficulties, stable continuous operation was eventually attained in April. The findings relating to the sensors, mechanical conveying and gassing systems will play a key role in planning a commercial plant. (vd)

Continuation from page 5

VOLKSWAGEN AG PAINT AND EXHAUST AIR TREATMENT SYMPOSIUM AT CUTEC

After a lunchtime snack, followed by a tour around CUTEC, the afternoon featured a highly interesting discussion of the results obtained to date and of the still pending questions, moderated by Mr. Sollmann, director of the Environment Production department of Volkswagen AG.

The discussion illustrated that rarely had so many specialists from different sectors gathered around one table to consider the issues of exhaust air treatment in paint shops in all their different aspects. The participants unanimously agreed that a Symposium of this kind, featuring broad-based inter-disciplinary communication, should not merely remain a one-off gathering but should be established as a regular event. (pi)

FIRST-AID COURSE AT CUTEC

The first-aid rendered by a trained lay-person can be life-saving. This is confirmed by a study conducted by the University of Würzburg. It found that the condition of 60 percent of all emergency patients improved if first-aid was given before the arrival of the paramedics. On January 20th and 21st, 16 employees of the CUTEC Institute took part in a first-aid course here in our building.

The first day dealt with the theory. Mr. Müller, the trainer from the Malteser aid organisation, is a teacher at the Robert Koch School in Clausthal by profession. He taught the participants many of the basics of giving practical assistance. The morning focused on diagnosis of the vital signs: consciousness, breathing and heartbeat, as well as how to place the patient in a stable position on his or her side. The first day ended with tips on how to deal with difficulty in breathing, or if someone has stopped breathing altogether, as well as with heart and lung resuscitation.

The second day was all about dealing with minor wounds, breaks and other injuries. Provision of blood infusions and the application of bandages was practised. The final session covered topics such as poisoning and acid burns, which are all too relevant to an organisation such as ours. Following completion of the course, there are now 20 people available at CUTEC who have had first-aid training. So we are well prepared for emergencies involving injury. (croJ)

Successfully completed: the course participants

CONGRATULATIONS:

.... Many congratulations to Dipl.-Ing. Sven Schäfer for passing his doctoral exam, which he publicly submitted on March 23rd at the TU Clausthal. Mr. Schäfer has been employed at CUTEC since 2002, and some readers of our recruitment brochure last year may recall that we presented him as one of our young scientists with prospects of obtaining a doctorate. (he)

Dipl.-Ing. Sven Schäfer – soon to be Dr.-Ing.